

CLAIMS

1. (Currently amended) Device for changing the control times of gas-exchange valves in an internal combustion engine, the device comprising: a rotary piston adjustment device for angular adjustment of a camshaft relative to a crankshaft, with the following features:

the device [(1)] is mounted on a drive end of a camshaft supported in a cylinder head of the internal combustion engine and is a hydraulic actuator, which can be controlled as a function of various operating parameters of the internal combustion engine,

the device [(1)] includes a drive wheel [(2)], in driven connection with the crankshaft of the internal combustion engine, and a vane rotor [(3)], locked in rotation with the camshaft of the internal combustion engine,

the drive wheel [(2)] has a hollow space, which is formed by a hollow cylindrical peripheral wall [(4)] and two lateral walls ~~(5,6)~~ and in which at least one hydraulic work chamber [(9)] is formed by at least two radial limit walls ~~(7,8)~~,

the vane rotor [(3)] has, on a periphery of a rotor hub [(10)] thereof, at least one vane [(11)], which extends radially into the work chamber [(9)] of the drive wheel [(2)] and which sub-divides the work chamber into an A pressure chamber [(12)] and a B pressure chamber [(13)],

the pressure chambers ~~(12,13)~~ are adapted to produce a pivoting motion or to fix the vane rotor [(3)] relative to the drive wheel [(2)] and thus the camshaft relative to the crankshaft through selective or simultaneous pressurization with a hydraulic pressure medium,

the vane rotor [(3)] is mechanically couplable with the drive wheel [(2)] in a preferred base position within an adjustment region by a separate locking element

[(14)] when the pressure medium pressure falls below a pressure necessary for adjustment,

the locking element [(14)] is arranged in an axial bore hole [(15)] in the rotor hub [(10)] of the vane rotor [(3)] and can be moved by a spring element [(16)] into a locked position within a receptacle [(19)] in one of the lateral walls ~~(5, 6)~~ of the drive wheel [(2)],

the receptacle [(19)] for receiving the locking element [(14)] is connected hydraulically to at least one pressure chamber ~~(12 or 13)~~ within the device [(1)] via a pressure medium supply groove [(18)] provided in an inner surface of a corresponding one of the lateral walls ~~(5, 6)~~ of the drive wheel [(2)],

upon pressurization of the pressure chamber ~~(12 or 13)~~ with the pressure medium supply groove [(18)], the locking element [(14)] can move hydraulically into an unlocked position within the axial bore hole [(15)] in the rotor hub [(10)] of the vane rotor [(3)],

a local stop [(20)] is arranged within the pressure medium supply groove [(18)] provided in the inner surface of the corresponding lateral wall ~~(5, 6)~~ of the drive wheel [(2)], which interrupts the pressure medium supply to the receptacle [(19)] of the locking element [(14)] when the vane rotor [(3)] has been pivoted from the base position, and

in the side surface of the rotor hub [(10)] of the vane rotor [(3)] opposite the pressure medium supply groove [(18)] there is a bypass [(21)], such that the local stop [(20)] can be bypassed and a pressure medium supply to the receptacle [(19)] of the locking element [(14)] is possible only when the vane rotor [(3)] has been pivoted into the base position.

2. (Currently amended) Device according to claim 1, wherein the receptacle [(19)] for the locking element [(14)] and the pressure medium supply groove [(18)] are arranged in an inner surface of the lateral wall [(5)] of the drive wheel [(2)] facing away from the camshaft and are produced by stamping, and the local stop [(20)] in the pressure medium supply groove [(18)] is provided as a material crossbar remaining after the stamping.

3. (Currently amended) Device according to claim 2, wherein the bypass [(21)] for the local stop [(20)] in the pressure medium supply groove [(18)] is arranged in the side surface of the rotor hub [(10)] of the vane rotor [(3)] facing away from the camshaft and is provided as an elongated hole-like recess, which can be formed in a powder metallurgical production of the rotor hub [(10)] of the vane rotor [(3)] without further tools.